

Application No. 09/700,863
Docket No. A0-1269
Amendment dated October 13, 2003
Reply to Office Action of August 12, 2003

REMARKS

In the Office Action, the Examiner made final a rejection of remaining claims 1, 3, 4, 6-23, 26, 28-46, 48, 50, 51, 53 and 56 of the above-identified US Patent Application. Specifically:

(a) claims 23, 25, 26, 28-35, 42 and 44 were rejected under 35 USC §102 in view of WO 94/00980 to Howse (the "Howse publication");

(b) claims 1, 3, 4, 6-13, 20 and 22 were rejected under 35 USC §103 in view of the Howse publication and Applicants' admitted prior art (APA);

(c) claims 14-19, 21, 36-41, 43, 45, 46, 48 and 50 were rejected under 35 USC §103 in view of the Howse publication and U.S. Patent No. 5,685,109 to Rimback;

(d) claims 51-56 were rejected under 35 USC §103 in view of the Howse publication, the APA and Rimback;

(e) claims 23 and 44 were rejected under the judicially-created doctrine of obviousness-type double patenting over claim 1 of U.S. Patent No. 6,041,543 to Howse (the "Howse patent");

(f) claims 1, 4, 6, 10, 11 and 22 were rejected under the judicially-created doctrine of obviousness-type double patenting over claim 21 of the Howse patent in view of the APA;

(g) claim 3 was rejected under the judicially-created doctrine of obviousness-

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type double patenting over claims 21 and 22 of the Howse patent in view of the APA;

(h) claim 9 was rejected under the judicially-created doctrine of obviousness-type double patenting over claims 12, 19 and 20 of the Howse patent in view of the APA;

(i) claims 14-19 were rejected under the judicially-created doctrine of obviousness-type double patenting over claim 21 of the Howse patent in view of Rimback;

(j) claims 28-30, 32-35 and 42 were rejected under the judicially-created doctrine of obviousness-type double patenting over claim 1 of the Howse patent in view of the Howse publication; and

(k) claims 36-41, 43, 45, 46 and 50 were rejected under the judicially-created doctrine of obviousness-type double patenting over claim 1 in view of the Howse patent in view of Rimback.

The Howse publication is the priority document for the Howse patent. Adopting the convention used in a previous response to an office action and by the Examiner in the present office action, passages cited from the Howse publication will be made in reference to the column and lines at which the passages are found in the Howse patent. For convenience, these references are at times individually or collectively referred to simply as "Howse."

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Applicants offer no further amendments of the claims since it is the Applicants' view that the currently pending claims patentably distinguish the present invention over the prior art of record for the following reasons.

The independent claims are duplicated below for the convenience of the Examiner.

Claim 1 (Currently amended): A method of controlling a pest by at least partially coating the pest with a particulate material incorporating a killing or behavior-modifying agent, the method comprising the steps of drawing the pest sufficiently close to a surface bearing the particulate material so as to render the particulate material airborne, and then electrostatically coating at least part of the pest with the particulate material, the particulate matter being sufficiently fine as to become both airborne and electrostatically charged by the pest flying in the region of the surface.

Claim 23 (Currently amended): Pest control apparatus comprising a surface in a region of which a pest is capable of being lured and which bears a particulate material incorporating a killing or behavior-modifying agent, the particulate material being sufficiently fine as to become both airborne and electrostatically charged by the pest flying in the region of the surface.

Claim 45 (Currently amended): A pest control trap comprising a surface having at least one recess therein, and a particulate material incorporating a pest killing or behavior-modifying agent and accommodated in the at least one recess, the particulate material being sufficiently fine as to become both airborne and electrostatically charged by the pest flying in the region of the surface.

Claim 51 (Currently amended): A method of preventing the dispersion of a pest-contaminating particulate material from a surface of a pest trap, the method comprising the steps of forming the particulate material to be sufficiently fine as to become both airborne and electrostatically charged when rendered airborne by a pest flying in the region of the surface, and accommodating the particulate material in at least one recess in the surface of the trap.

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Rejection under 35 USC §102

Independent claim 23 and its dependent claims 25, 26, 28-35, 42 and 44 were rejected under 35 USC §102(b) as being anticipated the Howse publication. Applicants respectfully request reconsideration of this rejection in view of the following comments.

Applicants respectfully request that the Examiner consider the following:

1. Howse, 1st embodiment depicted by Figure 1

Col. 5, lines 11 to 14:

“A replaceable cylindrical insert . . . *coated on its inside surface with particles using electrostatic methods . . .*” (Emphasis added.)

Col. 5, lines 21 to 24:

“ . . . the reflected light causes the insect to alight on the inside surface of the cylindrical insert. As it attempts to walk, it accumulates particles on its feet that cause it to slip.”

2. Howse, 2nd embodiment depicted by Figure 2

Col. 5, lines 56 to 64:

“ . . . it attempts to land on the inner surface thereat it encounters *a thin coating of electrostatically charged particles on that surface*. The particles stick to the insect's feet so that it cannot land and/or stand securely on the inner surface of the cylinder 26. As a result, it either falls or progresses downwardly . . .” (Emphasis added.)

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3. Howse, 3rd embodiment depicted by Figure 3

Col. 6, lines 16 to 18:

“... a replaceable ring 49 of felt carrying *a layer of particles which have been deposited electrostatically thereon.*” (Emphasis added.)

Col. 6, lines 29 to 35:

“In doing so, it accumulates particles on its feet from the felt ring. As soon as it steps from the felt ring on to the sloping surface 51 of the funnel the cockroach loses its footing and becomes destabilized. The cockroach slips down the sloping surface . . .”

4. Howse, 4th embodiment depicted by Figure 4

Col. 6, lines 53 to 55:

“*The walkway is coated along all or most of its upper surface with electrostatically charged particles in the form of a powder.*” (Emphasis added.)

Col. 6, line 65 to col. 7, line 7:

“As the insect then walks on the central walkway 65, it accumulates the electrostatically charged particles on the undersurface of its feet. As it attempts to run or deviate from a central tract it steps on to the downwardly sloping edge of the walkway 65 and slips therefrom . . .”

5. Howse, further embodiment not depicted in the drawings

Col. 7, lines 27 to 29:

“Such a trap may comprise a shade for a light having a window of transparent material *carrying a surface of charged particles . . .*” (Emphasis added.)

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Col. 7, lines 30 to 32:

"Insects drawn to the light hit the window, acquire a coating of particles and drop into the trough."

6. Howse, further embodiment not depicted in the drawings:

Col 7, line 64 to col. 8, line 3:

"... *charged particles can be applied to plant surfaces*, such as, leaves, but adhere better to insects walking over them. Aphids become rapidly contaminated either by walking over a coated surface or by having powder blown over them ... powder may be formulated with insecticide. (Emphasis added.)

7. Howse, modification of other embodiments

Col. 7, lines 41 to 46:

"... involves omission of the trapping zone ... so that flying or crawling insects contaminated with the particles including an insecticide ... will return to contaminate other insects ..."

8. Howse, preferred method of the invention

Col. 3, lines 31 to 41:

"... the particles which carry an electrostatic charge ... are attracted to the insect by electrostatic forces ... Particles also adhere to the insect's feet, which causes any insect to become destabilized and to lose its grip on the surface it stands. The insect may then fall into a trapping zone ..."

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9. Howse, alternative method

Col. 3, lines 58 to 65:

“ . . . the particles may be dispensed in and/or dispersed by a liquid or gaseous carrier . . . dispensed from a nozzle as a spray or plume . . . ”

What is abundantly clear from the foregoing is that Howse primarily teaches the provision of an insect trap having a surface to which insects are lured, the surface having a thin layer of parts that are already electrostatically charged so as to adhere to the surface, and become attached to insects coming into contact with the surface. The primary function of the particles is to cause the insect to lose its grip on the surface and fall into a trap.

The applicant accepts that Howse also teaches that the particles may include an insecticide or the like and that the trap (trapping zone) may be dispensed with so that contaminated insects can escape to contaminate other insects.

There are two inferences in Howse to the particles becoming airborne. One relates to the use of a liquid or gaseous carrier to allow the particles to be dispensed from a nozzle as a spray or plume. The other concerns aphids becoming contaminated by having powder blown over them, but this is in the context of an embodiment of the invention comprising applying a charged power to the surfaces of plants such as leaves.

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The Examiner is aware that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegasi Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2D 1051,1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226,1236, 9 USPQ2D 1913,1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim.

The present invention as defined by claim 23 requires that the particulate material is sufficiently fine as to become airborne and electrostatically charged by means of the pest flying in the region of the surface bearing the particulate material. Thus, there are two issues to consider:

A) Does Howse teach that the particles (powder) are sufficiently fine as to become airborne by the pest flying in the region of the surface bearing the particles?
and

B) Does Howse teach that the particles become electrostatically charged through becoming airborne by the pest flying in the region of the surface bearing the particles?

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Considering issue A), in support of the view that Howse teaches that the particles are sufficiently fine to become airborne, the Examiner refers to col. 3, line 59, in which Howse has stated that the particles may be dispensed in and/or dispersed via a gaseous carrier, and to col. 7, line 66 through to col. 8, line 1, in which Howse states that "Aphids become rapidly contaminated . . . by . . . having powder blown over them" Based on these carefully selected extracts from Howse, the Examiner then proceeds to contend that there is a reasonable expectation for success to use powders that are so fine as to become airborne when a flying insect passes. The concept of reasonable expectation of success is a matter of obviousness, not one of anticipation, and therefore the rejection of claim 23 under U.S.C. 102(b) fails on this point alone.

Notwithstanding the latter point, the Examiner's contention is wrong for the following reasons.

The reference to col. 3, line 59, in which it is stated that particles may be dispersed via a gaseous carrier is irrelevant to the question of whether the invention as defined by claim 23 is anticipated by Howse, since this part of the teaching of Howse is to an embodiment that does not employ a surface bearing the particles as required by the present invention. In this embodiment of Howse, the particles are applied directly to the pest and dispersed in a liquid or gaseous carrier that is dispensed from a nozzle as a

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spray or plume presumably into the air. The fact that the particles may then land on a surface over which an insect may fly is equally irrelevant since by this stage the particles have already been electrostatically charged by the spraying process (col. 4, lines 15 to 17).

Even if it could be argued that this part of the teaching of Howse is relevant to the question of anticipation, it does not support the Examiner's contention that it leads to a reasonable expectation for success to use powders that are so fine as to become airborne when a flying insect passes. The method of dispensing the particles in a liquid or gaseous carrier through a nozzle requires a pressure greater than atmospheric pressure to cause the particle/carrier mixture to be dispensed. Conventionally, a pressure of several atmospheres is required to cause the dispensed fluid to form a spray or plume. One skilled in the art would not be led by this teaching to conclude that the fineness of the particles must be so small that they could, when uncharged and free standing on a surface, be disturbed by the air momentum imparted to the particles by a flying insect. It is clear therefore that this part of the teaching of Howse does not disclose that the particles are, in fact, sufficiently fine as to become airborne when a flying insect passes in a region of a surface bearing the particles. Further, it would be perverse to attempt to suggest that this part of the teaching of Howse would lead a

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skilled artisan to this feature of the invention. It is possible to make any object airborne by applying sufficient force to it - tornadoes and hurricanes are sufficient proof of this.

The reference in Howse that "Aphids become rapidly contaminated . . . by . . . having powder blown over them . . ." has been skillfully selected by the Examiner as supporting her contention regarding what Howse teaches about the fineness of the particles. However, when this part of the teaching of Howse is considered in its correct context, it can be seen that it does not teach the feature of the invention that the particulate material is sufficiently fine as to become airborne by means of the pest flying in the region of the surface bearing the particulate material. Howse teaches that charged powders may be applied to plant surfaces such as leaves and that aphids can become rapidly contaminated either by walking over a coated surface or by having powder blown over them. The powder is charged as a means of firstly causing it to adhere to the plant surface, and secondly as a means of adhering to an insect in contact with, e.g., by walking on, the plant surface. A skilled artisan will readily appreciate that the plant surface so coated is likely to be subject to wind currents, even where the charged powder is used internally, e.g., a greenhouse, and that such wind currents would remove the powder from the plant surface if it is not provided with some means of adhering to the surface, i.e., it was not electrostatically charged. Equally, the skilled

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artisan will appreciate that some of the charged particles will still be dislodged from the surface by wind currents, and it is in this limited context that Howse makes reference to an insect (aphid) becoming contaminated by having powder blown over it.

Consequently, this part of the teaching of Howse does not teach the feature of the invention that particulate material is sufficiently fine as to become airborne by means of the pest flying in the region of the surface bearing the particulate material.

Considering issue B) from above, it is clear from col. 3, line 59 and col. 4, lines 15 to 17, that the act of dispensing particles dispersed in a liquid or gaseous carrier through a nozzle results in the particles becoming electrostatically charged. In so far as this part of the teaching of Howse can be argued to be relevant, it does not teach the feature of the present invention that the particulate material is sufficiently fine as to become electrostatically charged, when airborne, by means of the pest flying in the region of the surface bearing the particulate material.

As has already been discussed, that part of the teaching of Howse describing the embodiment comprising applying a powder to plant surfaces requires that the powder is charged prior to being applied to the plant surface. Consequently, the Examiner cannot maintain her contention that this teaches the feature of the invention that the particulate material is sufficiently fine as to become electrostatically charged,

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when airborne, by means of the pest flying in the region of the surface bearing the particulate material.

The Examiner has made reference to col. 4, lines 8 to 13, of Howse in which it is stated that "Charging of the particles may be achieved by friction" and "frictional charging of the particles in the case of traps may take place . . . during operation." It is the wording "during operation" that the Examiner seizes on as supporting the view that Howse teaches that the particles may become charged through friction while airborne as a result of having been disturbed by a flying insect. Reference is made to col. 7, lines 14 to 18, which indicates that the powder may be charged by shaking the housing in which the powder has been placed such that the charged powder coats the internal surfaces of the trap. Here, the means of shaking the housing is presumably by manually shaking the housing, and therefore fineness of the particles from the point of view of them being made airborne is not an issue. The important issue here is that the term "operation" used at col. 4, line 13, relates to operation of the trap, and not to operation of the particles. Col. 4, lines 10 to 13, more fully explains that frictional charging of the particles in the case of traps may take place during manufacture, during assembly, prior to operation, and/or during operation of the trap, and not of the particles (or the insect for that matter), one example of which is discussed at col. 7, lines 14 to 18. This is the

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correct grammatical construction of this part of Howse, and would not be construed by a skilled artisan as somehow providing a teaching that the powder could be frictionally charged during operation of the powder as a result of becoming airborne by means of air momentum imparted to the particles by a flying insect.

The present invention, as defined by claim 23, provides an advance in the art in its recognition that a flying insect can alone provide the source of energy necessary to cause a sufficiently fine and uncharged particulate material to become airborne and thereby also become electrostatically charged as a means of delivering a killing or behavior modifying agent to the insect.

In view of the foregoing, Applicants respectfully believe that the rejection of claim 23 and its dependent claims under 35 USC 102(b) cannot be sustained, since the Examiner cannot point to a single prior art reference that reveals each and every element as set forth in claim 23. As such, Applicants respectfully request withdrawal of the rejection under 35 USC §102. Applicants respectfully believe it would also not be appropriate to merely replace this rejection with a new ground of rejection under 35 USC 103 for reasons also addressed in the foregoing.

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Rejections under 35 USC §103 and Obviousness-type Double Patenting

Each of the rejections under 35 USC §103 and under obviousness-type double patenting is based on either the Howse publication or claims of the Howse patent (with or without a secondary or tertiary reference). As previously noted, the Howse publication is the priority document for the Howse patent. Obviousness-type doubling patenting rejections are to be analyzed in the same manner as rejections under 35 USC §103. As such, the following arguments summarize the teachings of the Howse publication and patent and address the §103 and double patenting rejections together.

The Examiner rejected independent claim 1 and dependent claims thereof as being obvious under 35U.S.C. 103(a) in view of Howse and admitted art (Admission).

Applicants respectfully believe that this ground of rejection is flawed for many of the reasons discussed in the foregoing with respect to the rejection of claim 23. The fact that it is known that a flying insect imparts momentum to the air around it through the motion of its wings does nothing to support the rejection of claim 1 as obvious, since there is no motivation for a skilled artisan to modify Howse to provide a method as defined by claim 1. With the exception of the "during operation" reference used by the Examiner, which the applicant has discredited, Howse is consistent in

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teaching that the particles forming the thin layer coatings in the various embodiments of the traps disclosed in Howse are electrostatically charged in advance of insects being afforded access to them, such that an insect becomes contaminated by contact with the electrostatically charged particles of the coated surface. Therefore, the rejection under 35U.S.C 103(a) cannot be sustained.

In combining the teachings of Howse and the Admission, the combination does not disclose all of Applicants' claimed features, since the combination still fails to teach that the particulate material is sufficiently fine as to become airborne and electrostatically charged by means of the pest flying in the region of the surface bearing the particulate material, for the various reasons explained in detail with respect to the rejection of claim 23.

The Examiner rejected claims 14-19 and 21 (which depend from claim 1) and claims 36-41 and 43 (which depend from claim 23) as being unpatentable under 35 U.S.C. 103(a) over Howse in view of Rimback.

It is agreed that Rimback discloses a recess in an insect trap. However, the function of the recess is to accommodate a solid bait such as fish, hamburger, cat food, etc., in order to attract insects to the trap. The recess is surrounded by a second bait

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region which, in use, contains a liquid bait such as fruit juice which also acts to drown trapped insects. There is no suggestion in Rimback that the solid bait can be made airborne by a flying insect, nor is this bait designed to deliver a killer agent to a flying insect.

In the present invention, the recess allows a store of fine particulate material to be contained on a particulate bearing surface of the trap such that the recess not only prevents the wind from blowing the particulate material away, but also controls to a degree the rate of delivery of particulate material to a flying insect that has caused some of the particulate at the top of the store to become airborne. The many advantages of using a recess in this manner are fully explored in the specification of the present invention and need not be set out in detail here.

The suggestion that a skilled artisan might look to Rimback for this feature of the invention can only have been arrived at by the impermissible use of hind sight. There is no motivation whatsoever for a skilled artisan to consider Rimback, since it employs an entirely different strategy for trapping and killing flying insects.

Applicants believe that the above sets forth arguments that are equally applicable to each of the remaining grounds for rejecting the claims under 35 USC §103

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and double-patenting, such that all of the remaining rejections are overcome in view of the foregoing - namely, the teachings of the Howse publication and the claims of the Howse patent, alone or in any of the combinations set fourth in the Office Actions, do not disclose, teach or even suggest that Applicants' claimed particulate material is sufficiently fine as to become both airborne and electrostatically charged by means of a pest flying in the region of the surface bearing the uncharged particulate material.

For all of the above reasons, Applicants respectfully request withdrawal of the rejections under 35 USC §103 and under obviousness-type double patenting.

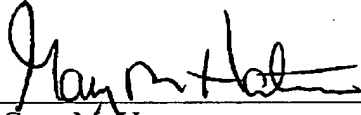
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Closing

In view of the above, Applicants respectfully requested that their patent application be given favorable reconsideration.

Should the Examiner have any questions with respect to any matter now of record, Applicants' representative may be reached at (219) 462-4999.

Respectfully submitted,

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